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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/836,295	04/18/2001	Marcos C. Tzannes	081513-59	6894
181	7590	04/04/2005	EXAMINER	
MILES & STOCKBRIDGE PC 1751 PINNACLE DRIVE SUITE 500 MCLEAN, VA 22102-3833				AHN, SAM K
ART UNIT		PAPER NUMBER		
		2637		

DATE MAILED: 04/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/836,295	TZANNES, MARCOS C.
	<b>Examiner</b>	<b>Art Unit</b>
	Sam K. Ahn	2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on amendment, received on 11/22/04.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1,3-7,9-13,15-19,21-36,38-42,44 and 45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,3-7,9-13,15-19,21-36,38-42,44 and 45 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 18 April 2001 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>111601</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Allowable Subject Matter***

1. The indicated allowability of claims 4,10,16,22,27,33,39 and 45 are withdrawn in view of the newly discovered reference(s) to Cai, USP 6,205,410 B1. Rejections based on the newly cited reference(s) follow.

### ***Information Disclosure Statement***

2. The copy of the reference "Spectrum Management for Loop Transmission Systems" in the information disclosure statement (IDS) was submitted on 11/22/04. The information disclosure statement is being considered by the examiner.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1,3,5-7,9,11 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by McHale (cited previously).

Regarding claims 1,7, McHale discloses a method and apparatus of multicarrier modulation communication system over a plurality of subchannels (see Fig.1)

comprising, a plurality of subchannels, and a plurality of margins (see Fig.3 and note col.6, line 11 – col.7, line 28), at least a portion of the plurality of margins associated with a portion of the plurality of subchannels (wherein for a portion of the plurality of subchannels or sub-band, in step 64, is associated with a portion of the plurality of margins computed in step 76). McHale teaches plurality of subchannels or sub-bands where the algorithm processes for each sub-band and determine whether all the sub-bands have been computed (note col.7, lines 23-28). McHale further teaches wherein the plurality of margins are based on at least one of changes in the levels of a crosstalk, impulse noise, temperature changes, wire line length, radio frequency interference, a bit error rate, a signal to noise ratio, a seasonal change, statistical information, time information, day information and data rate information (note col.3, line 42 – col.4, line 4 and col.5, line 58 - col.6, line 10), and further teaches wherein at least one margin is assigned based on the physical parameters of the wire line (note col.3, lines 55-59 and col.5, line 58 - col.6, line 10).

Regarding claims 3 and 9, McHale teaches all subject matter claimed, as applied to claim 1 or 7. McHale further teaches wherein the plurality of margins are at least one of an average margin and a subchannel specific margin (see Fig.3 wherein specific margin for each subchannel is computed, assigned and stored).

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Regarding claims 5 and 11, McHale teaches all subject matter claimed, as applied to claim 1 or 7. McHale further teaches a margin determiner that determines at least one margin (see step 76 in Fig.3 operated within control unit of 18 in Fig.1).

Regarding claims 6 and 12, McHale teaches all subject matter claimed, as applied to claim 1 or 7. McHale further teaches a margin storage device that stores at least one margin (see step 80 in Fig.3 operated within control unit of 18 in Fig.1, and note col.3, lines 42-44).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 13,15,17-19,21,23-26,28-32,34-36,38,40-42 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over McHale (cited previously).

Regarding claims 13,19,23,24,25,36 and 42, McHale discloses a method and apparatus of multicarrier modulation communication system over a plurality of subchannels (see Fig.1) comprising, a plurality of subchannels, and a plurality of

margins (see Fig.3 and note col.6, line 11 – col.7, line 28), at least a portion of the plurality of margins associated with a portion of the plurality of subchannels (wherein for a portion of the plurality of subchannels or sub-band, in step 64, is associated with a portion of the plurality of margins computed in step 76).

McHale teaches plurality of subchannels or sub-bands where the algorithm processes for each sub-band and determine whether all the sub-bands have been computed (note col.7, lines 23-28). McHale further teaches wherein the plurality of margins are based on at least one of changes in the levels of a crosstalk, impulse noise, temperature changes, wire line length, radio frequency interference, a bit error rate, a signal to noise ratio, a seasonal change, statistical information, time information, day information and data rate information (note col.3, line 42 – col.4, line 4 and col.5, line 58 - col.6, line 10), and further teaches wherein at least one margin is assigned based on the physical parameters of the wire line (note col.3, lines 55-59 and col.5, line 58 - col.6, line 10).

Although McHale does not explicitly teach wherein the plurality of margins are different, it would have been obvious to one skilled in the art at the time of the invention to analyze that different sub-bands would have a different margin since the system computes separate margin (76 in Fig.3) for its corresponding sub-band (64 in Fig.3 and note col.6, lines 11-28, col.7, lines 23-28) for the purpose of assigning correct and effective margin depending on the BER test (in step 68), otherwise it would not be necessary to loop back to the selection step (step 64) to compute for a different sub-band.

Regarding claims 15,21,26,38 and 44, McHale teaches all subject matter claimed, as applied to claim 19,36 or 42. McHale further teaches wherein the plurality of margins are at least one of an average margin and a subchannel specific margin (see Fig.3 wherein specific margin for each subchannel is computed, assigned and stored).

Regarding claims 17,28,34 and 40, McHale teaches all subject matter claimed, as applied to claim 13,24,30 or 36. McHale further teaches a margin determiner that determines at least one margin (see step 76 in Fig.3 operated within control unit of 18 in Fig.1).

Regarding claims 18,29,35 and 41, McHale teaches all subject matter claimed, as applied to claim 13,24,30 or 36. McHale further teaches a margin storage device that stores at least one margin (see step 80 in Fig.3 operated within control unit of 18 in Fig.1, and note col.3, lines 42-44).

Regarding claim 30, McHale teaches training two or more bands simultaneously (note col.6, lines 25-29). In step 64, the system selects a first number of subchannels, assigning a first margin (in step 80). Since not all subchannels have been trained, the system determines further training (determined in step 92, note col.7, lines 23-27), where a second number of subchannels are selected (in

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step 64), and again assigning a second margin to the second number of subchannels (in step 80) by repeatedly going through the algorithm until all subchannels have been trained.

Although McHale does not explicitly teach wherein the plurality of margins are different, it would have been obvious to one skilled in the art at the time of the invention to analyze that different sub-bands would have a different margin since the system computes separate margin (76 in Fig.3) for its corresponding sub-band (64 in Fig.3 and note col.6, lines 11-28, col.7, lines 23-28) for the purpose of assigning correct and effective margin depending on the BER test (in step 68), otherwise it would not be necessary to loop back to the selection step (step 64) to compute for a different sub-band.

Regarding claim 31, McHale teaches all subject matter claimed, as applied to claim 30. McHale further teaches wherein the plurality of margins are based on at least one of changes in the levels of a crosstalk, impulse noise, temperature changes, wire line length, radio frequency interference, a bit error rate, a signal to noise ratio, a seasonal change, statistical information, time information, day information and data rate information (note col.3, line 42 – col.4, line 4 and col.5, line 58 - col.6, line 10), and further teaches wherein at least one margin is assigned based on the physical parameters of the wire line (note col.3, lines 55-59 and col.5, line 58 - col.6, line 10).

Regarding claim 32, McHale teaches all subject matter claimed, as applied to claim 30. McHale further teaches wherein the plurality of margins are at least one of an average margin and a subchannel specific margin (see Fig.3 wherein specific margin for each subchannel is computed, assigned and stored).

5. Claims 4,10,16,22,27,33,39 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over McHale et al. (cited previously) in view of Cai, USP 6,205,410 B1.

Regarding claims 4,22 and 27, McHale teaches a multicarrier modulation communication system comprising: a plurality of subchannels and a plurality of margins (see Fig.3 and note col.6, line 11 – col.7, line 28).

And although McHale does not explicitly teach wherein the plurality of margins are different, it would have been obvious to one skilled in the art at the time of the invention to analyze that different sub-bands would have a different margin since the system computes separate margin (76 in Fig.3) for its corresponding sub-band (64 in Fig.3 and note col.6, lines 11-28, col.7, lines 23-28) for the purpose of assigning correct and effective margin depending on the BER test (in step 68), otherwise it would not be necessary to loop back to the selection step (step 64) to compute for a different sub-band.

However, McHale does not explicitly teach wherein a portion of the plurality of margins are an average margin that is applied to a portion of the plurality of subchannels.

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Cai teaches computation of margins and setting initial parameters, wherein the parameters include overall margin, which is an average margin (note col.5, lines 10-22). Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify McHales' system to implement Cai's teaching of using an average margin during retrieval of profile and training session and applying the average margin to a portion of the plurality of subchannels for the purpose of setting an efficient average margin (in step 62) during the training session prior to the computation of margins (in step 76) for either the first or second number of subchannels.

Regarding claims 10,16,39 and 45, McHale teaches all subject matter claimed, as applied to claim 9,15,38 or 42. However, McHale does not explicitly teach wherein the average margin is applied equally to a portion of the plurality of subchannels.

Cai teaches computation of margins and setting initial parameters, wherein the parameters include overall margin, which is an average margin (note col.5, lines 10-22).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify McHales' system to implement Cai's teaching of using an average margin during retrieval of profile and training session by applying the average margin to a portion of the plurality of subchannels for the purpose of

setting a margin value during the training session to the portion of the plurality of subchannels.

Regarding claim 33, McHale further teaches training two or more bands simultaneously (note col.6, lines 25-29). In step 64, the system selects a first number of subchannels, assigning a first margin (in step 80). Since not all subchannels have been trained, the system determines further training (determined in step 92), where a second number of subchannels are selected (in step 64), and again assigning a second margin to the second number of subchannels (in step 80) by repeatedly going through the algorithm until all subchannels have been trained. And although McHale does not explicitly teach wherein the plurality of margins are different, it would have been obvious to one skilled in the art at the time of the invention to analyze that different sub-bands would have a different margin since the system computes separate margin (76 in Fig.3) for its corresponding sub-band (64 in Fig.3 and note col.6, lines 11-28, col.7, lines 23-28) for the purpose of assigning correct and effective margin depending on the BER test (in step 68), otherwise it would not be necessary to loop back to the selection step (step 64) to compute for a different sub-band. However, McHale does not explicitly teach wherein an average margin is applied to a portion of the first or second number of subchannels.

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Cai teaches computation of margins and setting initial parameters, wherein the parameters include overall margin, which is an average margin (note col.5, lines 10-22).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify McHale's system to implement Cai's teaching of using an average margin and applying the average margin to a portion of either the first or second number of subchannels for the purpose of setting an efficient average margin (in step 62) during the training session prior to the computation of margins (in step 76) for either the first or second number of subchannels.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sam K. Ahn  
3/31/05

TEMESGHEN GHEBRETTINSAE  
PRIMARY EXAMINER

4/1/05